



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/607,067	06/25/2003	Shinya Kubota	NGW-006	6557
959	7590	04/05/2005	EXAMINER	
LAHIVE & COCKFIELD, LLP. 28 STATE STREET BOSTON, MA 02109			KLEBE, GERALD B	
			ART UNIT	PAPER NUMBER
			3618	

DATE MAILED: 04/05/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/607,067	Applicant(s) KUBOTA ET AL.	
	Examiner Gerald B. Klebe	Art Unit 3618	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 10 January 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-7 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-7 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 10 January 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

GB Klebe
28 March 2005

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Amendment

1. The amendment filed 01/10/2005 under 37 CFR § 1.111 has been entered. Claims 1-7 are pending in the application.

Acknowledgement of Priority Paper Translation

2. The English-language translation filed 01/10/2005 of the priority paper JP2002-184981 has been received and made of record.

Drawings

3. The proposed drawing corrections filed 01/10/2005 have been approved by the examiner.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 1- 3 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ono et al. (US 6378637) in view of Bruck et al. (US 2003/0027026 A1) and further in view of Muraki et al.(US 6220383).

- a. Ono et al. discloses a fuel cell powered electric vehicle (taken in the configuration identified in the reference at column 4, lines 62-67 whereby the traction motor (6) is arranged in the rear of the vehicle and the fuel tank (1), fuel reformer (2), fuel cell (3) and electrical energy

Art Unit: 3618

storage device (battery, 7) are installed below the floor (15) of the vehicle each in the order stated, from the front to the rear of the vehicle) comprising : **(re: claim 1)**

a fuel cell (item 3; refer Figure 5 for item numbering but taking the elements as arranged in the reverse configuration from front to rear of the vehicle as pointed out above being addressed in the reference at column 4, lines 62-67); and an electricity storing device (item 7); both disposed under a floor of a cabin.

b. Regarding the further limitations of the claim 1 wherein the fuel cell and battery are housed in a box under the floor of the cabin, and wherein the box includes a plate separating the fuel cell from the battery, and regarding the feature of claim 2 wherein heat insulating material is provided on the plate, Ono et al. lacks explicit disclosure wherein the fuel cell and the battery are each stored within a box, the box including a plate separating the fuel cell from the battery. However, Bruck et al. teaches an electric drive vehicle powered by a fuel cell installed in a container (a "box") under a cabin of the vehicle and further teaches that it is old and well-known in the art that the housing containing the fuel cell be thermally insulated (refer para. [0005] and [0035]). Therefore, it would have been obvious to one of ordinary skill in the art at the time the instant invention was made to have modified the disclosure of Ono et al. in accordance with the teachings of Bruck et al. by housing the fuel cell and battery in an insulated box under the floor of the vehicle and to insulate the portion of the box housing the fuel cell from the portion housing the battery.

c. Regarding the further limitations of the claim 1 wherein the battery is cooled by air which has passed through a through-hole on the box connecting between the battery and the cabin, Muraki et al. teaches an electric powered vehicle having an electricity storing

Art Unit: 3618

device (Fig 2, item 2) housed in a box (6) disposed under a floor (not separately numbered) of a cabin of the vehicle wherein the box includes a through-hole (not separately numbered) connecting between the electricity storing device and the cabin, and wherein the electricity storing device is cooled by the air which is passed through the through-hole (refer Fig 2, and associated text col 3, lines 10-50). Therefore, it would have been obvious to one of ordinary skill in the art at the time the instant invention was made to have modified the vehicle power system of the combination of Ono et al. and Bruck et al. to include a through-hole in the box for cooling air from the cabin to be routed past the electricity storing device as taught by Muraki et al. in order to maintain the temperature of the electricity storing device at an acceptable level as suggested by the reference at column 1, lines 17-20 and column 3, lines 20-24. Moreover, **regarding the limitations of claim 3 wherein the electricity storing device has refrigerant passage inlet and outlet ports connected to the cabin via respective through-holes**, Muraki et al. further teaches the use of refrigerant inlet and outlet ports in the electricity storing device box where the inlet port is connected to a vehicle cabin, but the outlet port is exhausted to the trunk or environment (refer col 3, lines 43-50). However, it would have been obvious to one of ordinary skill in the art at the time the instant invention was made to have modified the refrigerant routing of the combination of Ono et al., Bruck et al., and Muraki et al. so that the outlet port was a return through the vehicle cabin as a matter of obvious design choice, since Applicant has not disclosed that routing the refrigerant outlet into the vehicle cabin interior rather than to the environment solves any stated problem or is for any particular purpose and it appears that the invention would perform equally well with the refrigerant air exhausted directly to the environment.

Art Unit: 3618

6. Claims 4-5 are rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Ono et al. (US 6378637), Bruck et al. (US 2003/0027026 A1) and Muraki et al. (US 6220383) as applied to claim 1 and further in view of Tajiri et al. (US 5490572).

As discussed above, the combination of Ono et al., Bruck et al. and Muraki et al. discloses all of the features of claim 1 from which claims 4-5 depend.

The combination of Ono et al., Bruck et al., and Muraki et al. lacks explicit disclosure wherein (**re: claim 4**) the electricity storing device is controlled at a predetermined temperature.

However, regarding these limitations,, Tajiri et al. teaches an electric powered vehicle in which the electricity storing device (battery) is controlled at a predetermined temperature (refer col 2, lines 21-30).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the instant invention was made to have modified the disclosure of the combination of Ono et al., Bruck et al. and Muraki et al. to include a temperature controlling subsystem in accordance with the teachings of Tajiri et al. in order to maintain the battery temperature within a range for best performance as suggested by the reference at column 1, lines 17-52.

Further, regarding the limitations of claim 5 wherein the predetermined temperature of the electricity storing device is maintained in a range from about 40 deg. C. to 50 deg. C., it would have been obvious to one of ordinary skill in the art to have modified the vehicle power system of the combination of Ono et al., Bruck et al., Muraki et al. and Tajiri to maintain the electricity storing device in any suitable range, including a range from 40 deg. C. to 50 deg. C. since it has been held that where the general conditions of a claim are disclosed in the prior art,

Art Unit: 3618

discovering the optimum or workable ranges involves only routine skill in the art. *In re Aller*, 220 F.2d 454, 456, 105 USPQ 233, 235 (CCPA 1955).

7. Claims 6-7 are rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Ono et al. (US 6378637), Bruck et al. (US 2003/0027026 A1) and Muraki et al. (US 6220383) as applied to claim 1, and further in view of Hsu (US 5332630).

As discussed above, the combination of Ono et al., Bruck et al., and Muraki et al. discloses all of the features of claim 1 from which claims 6-7 depend.

The combination of Ono et al., Bruck et al., and Muraki et al. lacks explicit disclosure wherein (**re: claim 6**) the fuel cell is controlled at a predetermined temperature.

However, relative to these limitations of claim 6, Hsu teaches an electric powered vehicle in which the fuel cell is controlled at a predetermined temperature (refer col 6, lines 47ff).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the instant invention was made to have modified the disclosure of the combination of Ono et al., Bruck et al., and Muraki et al. to include a temperature controlling subsystem in accordance with the teachings of Hsu in order to maintain the fuel cell operation within a temperature range for best performance as suggested by the reference at column 2, lines 45- 66.

Regarding the limitations of claim 7 wherein the predetermined temperature of the fuel cell is maintained in a range from about 60 deg. C. to 80 deg. C., it would have been obvious to one of ordinary skill in the art to have modified the vehicle power system of the combination of Ono et al., Bruck et al., Muraki et al., and Hsu to maintain the fuel in any suitable range, including a range from 60 deg. C. to 80 deg. C. since it has been held that where the general

Art Unit: 3618

conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. *In re Aller*, 220 F.2d 454, 456, 105 USPQ 233, 235 (CCPA 1955).

Response to Arguments

8. Applicant's provision of an official English translation of the priority paper has been effective in removing the reference of Morita et al. (-186) as prior art.

Applicant's further arguments with respect to the claims have been considered but are moot in view of the new ground(s) of rejection.

Action made Final New Grounds Necessitated by Amendment

9. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Art Unit: 3618

Prior Art made of Record


10. The prior art made of record and not relied upon is considered pertinent to Applicant's disclosure. The prior art of Suba et al.; of Skala; of Whitehead et al.; of Hirayama et al.; of Harris et al.; of Mizuno et al.; and of Sugioka et al. each show features in common with some of the other structures of the inventive concept disclosed in the instant application.


Conclusion

11. Any inquiry concerning this or earlier communication(s) from the examiner should be directed to Gerald B. Klebe at 703-305-0578, fax 703-872-9306; Mon.-Fri., 8:00 AM - 4:30 PM ET, or to Supervisory Patent Examiner Christopher P. Ellis, Art Unit 3618, at 703-308-2560.

Official correspondence should be sent to the following TC 3600 Official Rightfax numbers as follows: Regular correspondence: 703-872-9326; After Finals: 703-872-9327; Customer Service: 703-872-9325.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


gbklebe / Art Unit 3618 / 29-Mar-05


CHRISTOPHER P. ELLIS
SUPERVISORY PATENT EXAMINER
TECHNICAL FIELD: 3618